

Putting Māori Modifiers in Their Place^{*}

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Abstract: This paper critiques previous syntactic analyses of the Maori language. Predicate nominal constructions are the subject of particular interest, leading to the proposal of certain constraints on the position of modifiers in phrase structure. These constraints are related to recent proposals by Chomsky (1995a).

1 Introduction

This paper reconsiders the position of modifiers in phrase structure. It is shown from the Maori language that modifiers must be adjoined to a non-predicative maximal projection. This restriction is argued to follow from more general conditions on modifiers proposed by Chomsky (1995a), namely that they may not appear XP-adjoined to theta related phrases (arguments, predicates). The motivation for this is briefly discussed.

However, before this is addressed it is necessary to establish the phrasal structure of Maori. The syntactic structure of this Polynesian language has been analysed within a Government and Binding framework most extensively by Jeffrey Waite (1989, 1990, 1994).² In these papers, Waite attempts to account for the ‘VSO’ order of Maori predicates as well as considering aspects of the noun phrase. However,

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Waite's account of sentential structure is inadequate in several respects. This paper identifies these inadequacies and suggests a different analysis of Maori within a Minimalist framework (Chomsky 1993, 1995a). Related to this paper's principal interest, the position of modifiers within phrase structure will be shown to be crucial to this analysis.

2 Waite (1989)

Most discussions of the syntax of the Maori language have attempted to be a-theoretic. Waite's (1989) paper is an exception in this regard, using Government and Binding Theory. This framework postulates a branching model of syntactic derivation, shown in the following diagram:

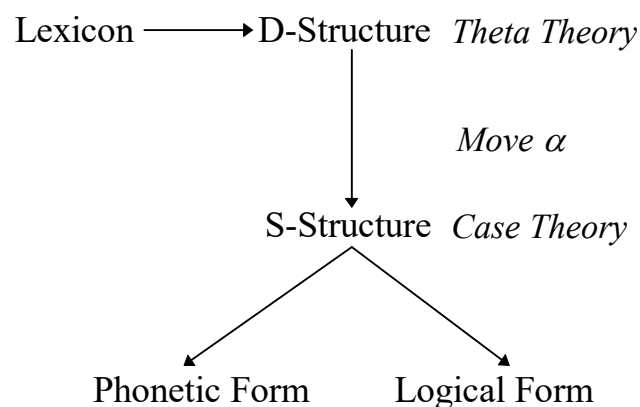


Figure 1: The G/B Derivation

Lexical items are input to the level of D-Structure which then arranges the phrase structure according to the requirements of Theta Theory and X-bar Theory. Phrases and phrasal heads may move in the course of derivation between D- and S-Structure. There is no constraint on movement *per se* except that all movements must be legitimate — they must not violate any constraints in other modules of the grammar. Once

at S-Structure Case Theory requires that all NPs must receive abstract Case in order to be realised at Phonetic Form. The phrase structure then diverges to PF, and is translated into articulatory output. The structure also diverges to LF from S-Structure. No movements made between S-Structure and LF are heard, since they are not input to PF.

Since the structure of the phrase at S-Structure determines what is heard at PF, modules of the theory at S-Structure play a crucial role in ordering constituents. Chief among these is Case Theory, and Waite's paper considers the surface distribution of elements to be a direct result of requirements on abstract Case assignment. In addition, he adopts a version of the VP-internal subject hypothesis (Koopman & Sportiche 1985, 1991). This proposes that at D-Structure a subject is generated adjoined to the predicate, whether that be a VP or an AP.³ As such, the basic transitive clause in Maori takes the form:

- (1) [CP [IP [I' {Tense/Aspect Marker} [VP2 Subject [VP1 [V' V Object]]]]]]

Along with this, a number of stipulations are made regarding Case assignment following analyses of other VSO languages, especially that of Welsh by Sproat (1985). Firstly, Waite proposes that Case can only be assigned rightwards. In G/B the significant categories in this regard are Infl, which assigns Nominative Case, and the Verb, which assigns Accusative Case. In addition, Case can only be assigned from a lexical head, or a head that is adjoined to a lexical head. As such, Infl cannot assign Case on its own. The third requirement is that of adjacency, which means that Case can only be assigned to an element that is strictly adjacent to the Case assigner, with adjacency defined in terms of an m- or c-command relation. The fourth stipulation has to do with the features

barrier will be taken as a guide. In Chomsky's conception a barrier α for β must immediately dominate a blocking category for β or *be* a blocking category for β . A blocking category is a maximal projection that includes β . In the case of Figure 2, VP^2 and VP^1 are segments of the same category — VP. As such, the question is whether VP is a blocking category for the subject NP. Notably, VP does not *include* the subject NP. To include the subject, both segments — VP^2 and VP^1 — must dominate it. However, VP^1 does not dominate the subject NP, thereby preventing VP from being a blocking category for the subject. Hence, VP^2 cannot be a barrier to Infl's government of the subject. Since Infl *can* govern the subject NP and assign nominative Case to it there is no need for the subject to move to [spec,IP] contrary to Waite's derivation. Since the movement of the subject is unnecessary, the need for the [V-I] complex to move to C is unmotivated. As for the distinction between the features [Case] and [Case Assigner], Maori offers no positive evidence that the two features are necessary. As such, I will not consider these.

In conclusion, Waite's (1989) analysis is theoretically inadequate in explaining Maori phrase structure.

3 Waite (1994)

Waite reanalyses the sentential structure of the basic Maori clause without comment in his 1994 paper. The subject is now taken to be generated in [spec,VP], not adjoined to VP. He continues to maintain that the parameters of Case directionality and adjacency are necessary, and that Case is assigned rightwards. However, these on their own would result in an order of [Infl Subject V Object], since the subject receives

nominative Case from Infl, and the object accusative Case from the verb. Waite does not mention the requirement that a Case assigner must be adjoined to a lexical head, but this stipulation certainly needs to be made in order to require the Verb to move to adjoin to Infl, resulting in [Infl V S O]:

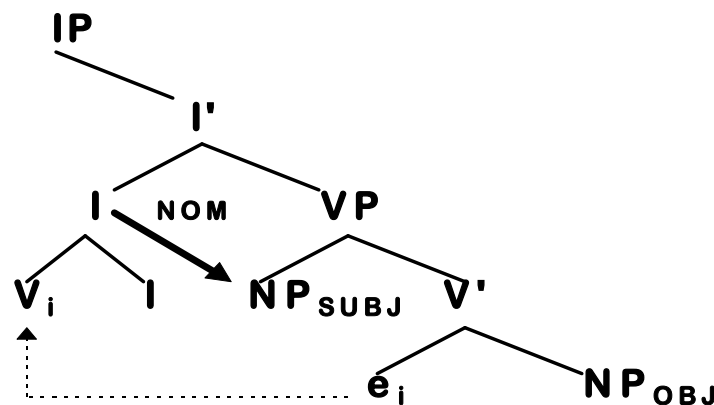


Figure 3: S-Structure in Waite (1994)

This is a significant simplification of Waite (1989), as there is only one overt movement now — the Verb adjoining to Infl. However, it is not the only possible analysis (see below). Despite this simplification Waite's analysis raises questions in other areas, especially with respect to non-verbal predicates.

3.1 Nominal and 'Adjectival' Predicates

Waite (1994:59,§14) proposes that predicate nominal constructions and adjectival predicate constructions are structurally analogous to Verbal predicates. Some of his examples follow, in slightly modified form:

(2) Predicate Nominal:

He tohunga ia.
 T/A expert (s)he
 (S)he is an expert

(3) Adjectival Predicates:

He mo:hio a Moana.
 T/A knowledgeable DET Moana.
 Moana is knowledgeable.

(4) He roa te kauri.
 T/A tall DET kauri
 The kauri is tall.

[Waite 1994:59]

An analysis of (2) will adequately illustrate Waite's approach. The D-Structure form of the sentence is [_{IP} he [_{NP} ia [_{N'} tohunga]]]. The N then moves to adjoin to the Infl element, resulting in the following:

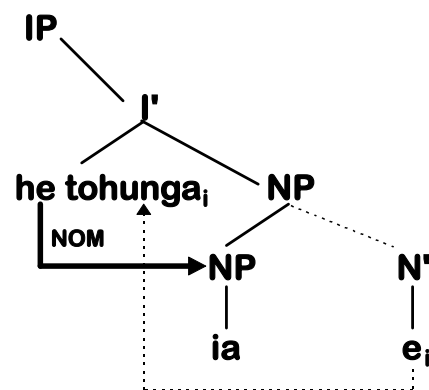


Figure 4: Waite's (1994) Predicate Nominal

There are a number of problems with this analysis. The first is in analysing *he* as a Tense Marker. The second has to do with the placement of modifiers and movement.

3.2 *He*

It is a popular belief that the *he* in predicate nominals is distinct from the determiner *he* (Chung, Mason, & Milroy [CMM] 1995:note 1; Reedy 1979:43-47; Bauer 1993:78; Waite 1994:59; Collberg 1994:19,20; Pearce 1995:22). The view that the *he* in predicate nominals a determiner is not a popular one (qv. Biggs 1973:26, Williams 1862, Clark 1976:36). Despite this, there is very little evidence that they are distinctly different elements.

Notably, if the *he* in predicate nominals is an Infl element, the predicative NP does not have a determiner. However, apart from object incorporation, every NP must be preceded by a determiner (Bauer 1993:109). Hence, the onus is on those who claim that the predicate NP does not have a determiner — that *he* is an Infl element — to explain why this is the case. On the opposite side, it is entirely expected that a predicate nominal *should* be preceded by the determiner *he*. The reason has to do with specificity.

At the risk of being overly simplistic, a noun phrase is non-specific when it does not refer to an entity.⁵ In languages like English specificity is not overtly marked. However, Bauer (1993), Polinsky (1992), and CMM have shown that *he* indicates that a NP is non-specific.⁶ This leads us to the status of the NP in predicate nominals. In a sentence such as *he tangata ia* ‘He is a man’ the predicate NP does not refer to any particular man. If it did, the sentence would be equational, identifying the two NPs as having the same referent as in the English sentence *John is the man standing over there*. Instead, the NP *he tangata* denotes a quality of the subject or a set of which the subject is a member. From this, since predicate nominals do not refer to a particular entity it is only natural that they should take the non-specific determiner. Hence, if any determiner *were* to be used in the predicate NP in Maori, it would be *he*.

One possible objection to the *he*-as-determiner analysis utilises examples such as (5):

- (5) (a) He roa te kauri.
 HE tall DET kauri tree.
 The kauri is tall.
- (b) He aataahua te wahine.
 HE beautiful DET woman
 The woman is beautiful.

Since the examples above do not contain a nominal head (a noun), it could be claimed that these are adjectival predicates, equivalent to English constructions of the type [_{IP} *The kauri is* [_{AP} *tall*]]. Despite this possibility, it is equally as likely that there is a phonetically unrealised noun in the predicate NP. The reason for the non-realisation of this Noun is that it is identical with that used in the argument. If the noun were included, (5b) would be *he wahine aataahua te wahine*, translated as ‘The woman is a beautiful woman.’ In English, sentences like this are avoided for stylistic reasons and an adjectival predicate is used instead: *The woman is beautiful*. However, unlike English, Maori makes a large amount of use of deletion of co-referent and *repeated* elements (Bauer 1993:149).⁷ Because of this, it is likely that the underlying form of (b) is *he (wahine) aataahua te wahine*. In fact, this type of deletion is attested in speech anyway; when the noun is obvious from context it can be deleted, leaving the determiner and adjective alone.⁸ So, the predicate head in these cases is a phonetically unrealised noun, deleted at PF for stylistic and discourse-related reasons.

The most in depth argument for terming *he* an Infl element is given by Reedy (1979). Firstly, he points out that the element following *he* in predicate nominals cannot be nominalised if it is an adjective or a verb. Consider the following examples:

(6) a) He hanga i te whare te mahi a Horo
 DET build_v ACC DET house DET work GEN Horo
 {lit. Horo's work is to build the house.}
 Horo is a builder *or* building houses is Horo's occupation.

b) * He hanga-tanga i te whare te mahi a Horo
 DET build_v-NOM ACC DET house DET work GEN Horo
 Horo's work is the building of the house.

c) He whero taku konohi.
 DET red my face
 My face is red.

d) *He whero-tanga taku konohi.
 DET red -NOM my face
 My face is redness.

[Reedy 1979:44]

Examples (b) and (d) show that the verb and the adjective following *he* cannot be nominalised.⁹ However, if *he* heads an NP, the option of nominalisation should be permitted, as it is in other contexts. So, Reedy is suggesting that the structure has a predicative adjective phrase: [_{IP} *he* [_{AP} *whero* ...]]. There is no predicate NP in the structure. This poses a problem if *he* marks the presence of an NP. However, this is easily resolved given the postulation of a phonetically unrealised N. There is a null NP inbetween the determiner and the adjective in (6c). Now, an adjective can only be nominalised when it heads an NP.¹⁰ In the case of *He whero*, *whero* does not do this; instead, it modifies a zero noun. This prevents *whero* from nominalising.

For the verb, there is again a deleted noun. Hence, (6a) is [_{IP} [_{DP} *He* [_{NP} $\emptyset$ [_{IP} *hanga i te whare*]]] *te mahi a Horo*]. In other words, the head N takes a relative clause, roughly translatable as 'Horo's work is one of

building the house.’ This construction is attested in a number of other contexts. Consider the following:

- (7) a) Ko te tangata horoi i te motokaa taku matua
 EQ DET man clean_V ACC DET car my parent
 The car cleaner is my father.

- b) Kei te piirangi-tia he tangata tiaki i te whare
 T/A DET want -PASS DET man care_V ACC DET house
 A person to look after the house is wanted. (Bauer
 1993:59)

(7a) is structurally identical to (6a) above: a noun, *tangata*, is modified by a relative clause without any tense marker. Returning to Reedy’s original point, it is impossible for the verb to be nominalised in this context since a nominal head is already present and the verb does not head an NP.¹¹

In summary, adjectives cannot nominalise as they do not head a NP, but modify a phonetically unrealised noun. Similarly, verbs cannot nominalise in this construction as they head a relative clause and *not* an NP. As such, positing a noun that is phonetically unrealised accounts for the facts of adjectives and verbs in predicate nominals.

In fact, one example elicited by Bauer (1993) supports the proposition that *he* is a determiner.

- (8) Teeraa tangata te moomona.
 that man DET fat
 That man is fat!

In this example the subject *teeraa tangata* has been fronted. Also, *he* has been replaced by the specific determiner *te*. In this context *te* has a discourse-related function — it intensifies the statement to mean that

‘The man is *extremely* fat’. Now, if *he* was a tense marker, we would expect **Teeraa tangata he te moomona*. Since *he* is heading Infl and *te* is part of the nominal phrase, there is no reason why an Infl element should delete in the presence of *te*. Because of this, it is evident that **Teeraa tangata he te moomona* is prohibited because *he* and *te* must both occupy the same position, being both determiners. It could be argued that (8) is actually an identity statement. However, this is highly unlikely as identity statements usually take the form [*ko* NP NP] as in *ko te tangata ia* ‘He is the man’.

The final objection to the *he*-determiner proposal is related to tense. If *he* is not a tense marker, then what marks tense in the clause? On the surface, there seems to be no overt realisation of tense.¹² In fact, this observation leads to the solution.

It has long been recognised that *he* cannot occur after prepositions (Williams 1862:18; Bauer 1993:356; Hohepa 1967:104). In addition, when *he* is used in a direct object in some dialects the accusative case marker *i* is omitted (CMM note 5). From this, it seems that not just any preposition but any preposition-related element cannot precede *he*.¹³ This includes prepositions, case markers, and tense markers. The only situation in which *he* could be preceded by a tense marker is in predicate nominals. Hence, the typical predicate nominal will have the following underlying form:

- (9) [Tense Marker] [*he* N (Adjective/ Relative Clause)]_{PRED} [NP]_{SUBJ}

The Tense Marker can never be phonetically realised since it precedes *he*. This accounts for why Tense is never overtly marked in a predicate nominal.

In summary, there are two reasons for supposing that the *he* in predicate nominals is the determiner. Firstly, it is unusual for NPs to appear without a determiner in Maori. Secondly, if any determiner were to appear in a predicate nominal it would be *he*. Given that the arguments against this are easily accounted for by positing a phonetically unrealised nominal head and a restriction on the co-occurrence of *he* and tense markers, it is evident that no good reasons remain to support the view that *he* is a tense marker in predicate nominals.

4 Modifiers and Movement

The reanalysis of *he* as a determiner in predicate nominals does not affect Waite's syntactic analysis to any significant degree. However, his proposals are soon seen to be untenable when the placement of modifiers is considered. The following sentence is a good example of this.

- (10) *he whare pai teenei.*
 DET house good this
 This is a good house.

In standard treatments of phrase structure, adjectives have appeared adjoined to a non-maximal node of an NP (e.g. Higginbotham 1987:49, Jackendoff 1977), and this is also the structure assumed by Waite (p.59#7). So, the underlying structure of (10) should be as follows:

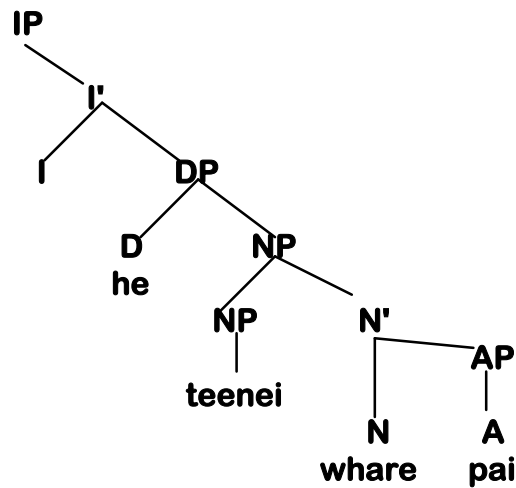


Figure 5: D-Structure of modified predicate nominal

The subject *teenei* is base generated in the specifier of NP.¹⁴ The adjective is right-adjoined to N', appearing to the right of the N head *whare*. Waite's analysis proposes that the head of the NP moves up to adjoin to the D head, thence to Infl. This is analogous to his analysis of the VP. The results of such a move are as follows:

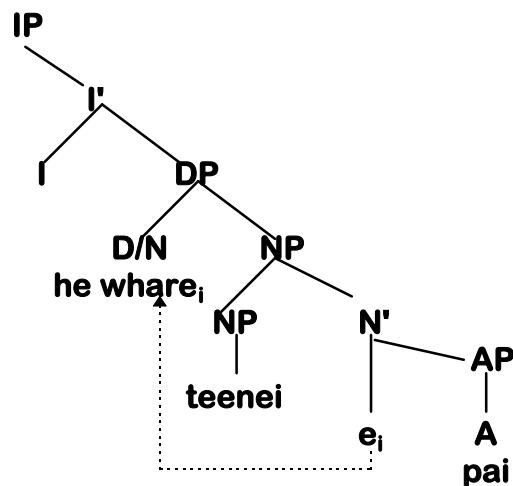


Figure 6: S-Structure

The problem with this is that the realisation of this sentence is output as the incorrect **he whare teenei pai*. Evidently, there is a problem with Waite's analysis.

4.1 Solutions to the Problem

There are a number of possible approaches to solving the above problem whilst retaining the standard conception of modifier position. These can be broadly divided into the head-movement approach and the maximal projection(XP)-movement approach.

A head movement approach such as Waite's needs to make further assumptions. It could be that the adjective adjoins to the nominal head. However, head movement from a modifier to the head of the phrase containing that modifier is not permissible for a variety of reasons.¹⁵ Hence, the adjective must be placed in another position, such as in the complement of the NP.¹⁶ Head movement from the complement position is permitted, so that the adjective head can raise and adjoin to the N head. This seems like a viable analysis, and even has a number of advantages. One is the oft-recognised feature that Maori NPs may only ever have one adjectival modifier. Since the NP may only have one complement in current conceptions of X' Theory and an adjective must appear in it, there can only ever be one adjective per noun — a welcome result (Hale & Keyser 1993, Kayne 1994, Chomsky 1995a:245).¹⁷

However, this approach necessitates a number of implausibilities. Consider (11):

- (11) he tohunga ki te reo te tangata nei
 DET expert in DET language DET person PROXI
 This man is an expert in the language.

Here, the modifier *ki te reo* must also adjoin to the nominal head *tohunga* in order to appear in the position it does. However, this involves a large number of head adjunctions — *reo* to *te*, *te reo* to *ki*, *ki te reo* to *tohunga* and so forth. In fact, this brings the problem of modifier head-adjunction back again; if the modifying phrase contains an adjective, this too must head-adjoin, defeating the purpose of this approach.¹⁸

As one final comment against this type of approach, it must be noted that it is not generally accepted that modifiers can move (Chomsky 1995a:329). Hence, determining the motivation for the movement of a modifier would require a revision of current conceptions of movement motivations. As such, given standard conceptions of where adjectives appear in the phrase structure, a head-movement approach does not offer an adequate solution to Maori predicate nominals.

4.1.1 XP-Movement

An alternative is to propose that the entire maximal projection moves. However, this requires abandoning a number of assumptions made hitherto. The first is the VP-Internal Subject Hypothesis. If the entire DP moves, then the subject should move with it, resulting in little difference in surface order. Hence, the subject must be generated outside the DP, perhaps in [spec,IP].¹⁹ This gives a D-Structure order of (10) as in (12):

(12) [_{TP} teenei T [_{DP} he [_{NP} [_{N'} [_{N'} where] pai]]]]]

The entire DP must then move. The most likely target for this is [spec,CP], with an S-Structure form of (13):

- (13) [_{CP} [_{DP} *he* [_{NP} [_{N'} [_{N'} *whare*] *pai*]]]]_i [_{C'} [_{TP} *teenei* T [_{e_i}]]]

There are a number of problems with this approach. One is to do with the tense marker. It was suggested above that the phonetic realisation of T was suppressed by the proximity of *he*. In this case, however, *he* and T are not adjacent, and so cannot affect each other.

The next reason has to do with analogy. It is common to see all constructions in a language as involving the same movements, whether VPs or predicate nominals. In this case, it must be asked why the DP must move in predicate nominals. It seems like *wh*-movement, attracted by some feature in the complementizer head. However, it must be explained why predicate nominals alone induce obligatory *wh*-movement of predicative DPs. The alternative is to argue that the VP in verbal predicates moves. However, to do this requires a large amount of phrasal manipulation. To result in a VSO order, the subject and object (or complement CP) must first be moved out of the VP, then the VP moved up to a higher specifier position than the subject and object. This goes against most approaches to VSO order; postulating all this movement detracts from the notion that VSO order is somehow *simply* derived, as in the standard hypothesis which postulates that the verbal head raises to Infl, and leaves its arguments *in situ* (Chomsky 1995a, Waite 1994).

The final reason is more concrete. In Maori, multiple specifiers of CP are not permitted. This is shown by a restriction on multiple topicalised or *wh*-moved phrases.²⁰ However, topicalisation *is* allowed with predicate nominals, as in [_{CP} *ko teenei*_i [_{IP} *he whare pai*]]. This would necessitate having multiple [_{spec,CP}]_s, an impossibility in Maori. Alternatively, it might be supposed that the DP does not in fact move to [_{spec,CP}], but adjoins to TP. However, it must again be inquired as to

the motivation behind this, and recent work suggests that adjunction to XP is impossible through movement (Chomsky 1995a:329).

In conclusion, although it is ultimately tenable, the XP movement approach suffers in that it requires the abandonment of VISH and the postulation of a special ‘predicate nominal’ feature which motivates the raising of the predicate DP. Although the XP-movement approach is not entirely eliminated as a possibility, it at least requires a set of complex movements, both covert and overt. This is counter-intuitive since VSO order is taken to be created by a single head-movement. So, the analysis of the Maori predicate nominal as it stands is inadequate from both a head- and an XP-movement approach.

5 A Solution

There is a straightforward solution to the problems presented in the previous sections. However, the answer requires a revision of what has hitherto been considered the proper position for modifiers. This section will show that the possible positions for modifiers in phrase structure is limited in certain ways. This will account for the fact that VP-adverbs only ever appear between the predicate head and its arguments while avoiding the problems encountered above.

The framework in which this analysis is set is the Minimalist Program (Chomsky 1995a:ch 4). The Minimalist model of derivation is less complex than that of G/B. In effect, only the interfaces at PF — the articulatory-perceptual component (AP) — and at LF — the conceptual-interpretive (CI) — are significant. The point of divergence to PF and LF is termed Spell-Out:

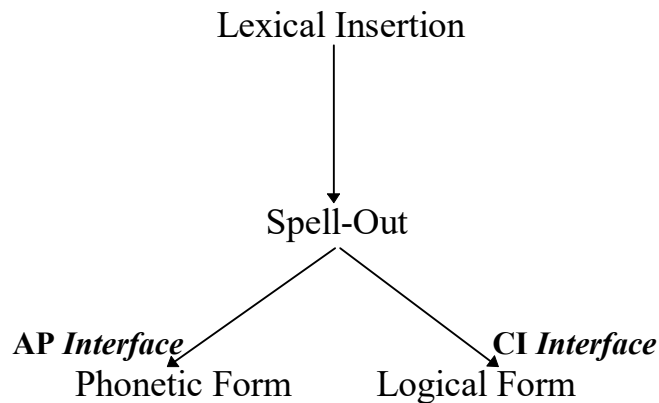


Figure 7: The Minimalist Derivation

Unlike G/B, Minimalism proposes that movement is driven by the need for elements to check certain features against elements containing identical features. In order to check its features, an element must be in a specifier-head or head-adjointed relation with its feature-checker. Pre-Spell Out movement is forced by so-called *strong* features. If a head bears a strong feature x , an element with a feature corresponding to x must rise to check it before Spell-Out. The heads that can bear strong features are few in number, being the functional heads Tense, Complementizer, Determiner, and light verb heads. No lexical heads may bear strong features (Chomsky 1995a:232, Marantz 1995:367).

Also, Chomsky (1995a:355) proposes that no head may project unless it contains a feature that is interpretable at an interface. Lexical heads, Tense, Determiners, and Complementizers all have such features, and the light verb phrase is interpretable as the relation that holds between the subject and predicate. Chomsky's stipulation has the affect of prohibiting a plethora of functional projections, such as the multiple Agr Phrases of early Minimalist work (Chomsky 1992, 1993; also Pollock 1989). In addition, Chomsky (1995a,b) develops a theory of 'bare' phrase structure. This is a simplification of the X' theory of

Jackendoff (1977) and Kayne (1984). The reader is referred to Chomsky (1995a,b) for a full exposition of Bare Phrase Structure. It suffices to here that the theory forces every non-terminal node to branch. In addition, all branching is to the *left*. This has many repercussions for phrase structure, and in Maori it means that adjectives cannot right-branch off a node in order to follow that node. Instead, the noun must move to a position asymmetrically c-commanding the adjective phrase, hence preceding it at PF (Kayne 1994, Chomsky 1995b).

This brief introduction lays out the framework in which this analysis is set. However, the following proposals with respect to modifiers do not *depend* upon Minimalism — they are valid for any theory that proposes that movement determines the surface word order of a language.

5.1 The Phrase

Chomsky (1995a:362) argues that the mechanisms of feature checking necessitate at least one of the arguments of a poly-valent predicate to move before Spell-Out. In Maori, this means that the Object must move. If the Subject moves, it would appear in [spec,TP], preceding the verb. Since Maori word order is VSO, this is inadmissible. From this, the Spell-Out structure of a transitive sentence in Maori is shown in Figure 8:

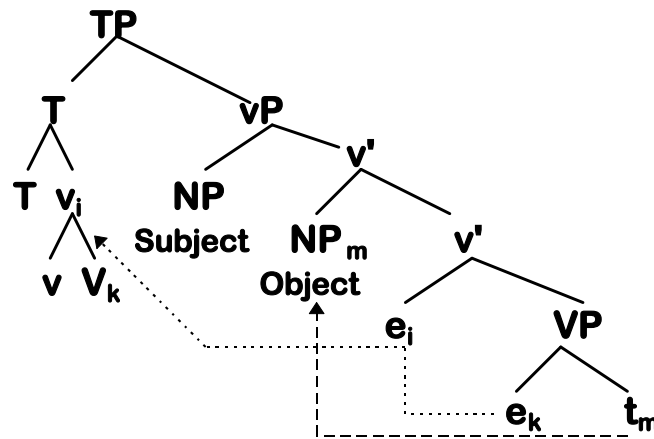


Figure 8: Minimalist Derivation of a Transitive Sentence in Maori

One of the main differences in phrase structure from Waite's point of view is the addition of a light verb phrase (vP). The light verb has no lexical content and its projection acts as a 'shell' that houses the external argument (Larson 1988, Chomsky 1995a, Hale & Keyser 1993). This reserves the lexical verb's projection for internal arguments only. The Object raises to one of the specifiers of the light verb phrase to check its phi (number and person) and Case features against the Verb. After this, the Subject is merged with the light verb phrase in a higher specifier.²¹ Allowing multiple specifiers of a phrase is an innovation on Chomsky's part. It permits object movement as well as allowing for the possibility that the same feature may be checked a number of times, as in multiple *wh*-movements and transitive expletive constructions in some languages (Chomsky 1995a). The verb also moves, adjoining to the light verb's head, and ending up adjoined to Tense. This gives the order [Tense V S O], and has the benefit of placing the Tense marker and the Verb in the same word for morphological purposes, hence being within the same phonological word.²²

For predicate nominals, one of the more significant proposals adopted in this paper is that the determiner heads a functional projection of its own — a DP (Abney 1987). This DP contains the NP in its

complement. Following the VP-Internal Subject Hypothesis and the Larsonian shell, the subject of a predicate nominal is generated in the specifier of a light noun phrase, represented as nP.

5.2 The Place of Modifiers

The preceding introduction has set the scene for a solution to the problem of Maori predicate nominals. So far, the approaches proposed have relied principally on movement to achieve the desired order, without questioning the validity of previous assumptions regarding modifier placement. Let us suspend standard conceptions of the placement of modifiers, and consider the following surface orders:

(14) T V Adv S O

(15) T D N Adj S

(14) represents the surface order of elements in a verbal sentence while (15) shows the order in a predicate nominal. Following Chomsky (1995a) and others, modifiers are taken to remain *in situ*. Since the simplest analysis of the verbal sentence is one in which only the verbal head moves, the adverb must be in a position above the subject:

(14') $[_{TP} T-[V-V_j]_i [_{VP} Adv [_{VP} Subj [_{V'} Obj_k [_{V'} e[e_j]_i [_{VP} e_j e_k]]]]]$

As shown in (14'), the most obvious assumption would be that the adverb is adjoined to the light verb phrase vP. An analogous structure is given for the predicate nominal:

$$(15') \quad [_{TP} T-[D-[n-N_j]_i]_k [_{DP} e[e_i]_k [_{nP} Adj [_{nP} Subj [_{n'} e[e_j]_i [_{NP} e_j]]]]]]$$

Here, the subject is base generated in a light nP. In order to achieve the order Det-N-Adj-Subj, the adjective must be XP-adjoined to the light phrase nP.

This proposal departs from earlier conceptions of phrase structure. In these, VP-adverbs were mostly taken to be adjoined to the VP while adjectives were adjoined to N' (Jackendoff 1977; Chomsky 1981, 1986). The latter structure was largely motivated by the placement of determiners in the specifier of NP. In an NP like [*the big dog*], the structure was [_{NP} the [_{N'} big [_{N'} dog]]] of a necessity. However, the DP hypothesis places the determiner outside the NP. Hence, it is entirely consistent with current theoretical practice to suppose that the adjective is not adjoined to a non-maximal node, but to an XP. In other words, *the big dog* can be represented as [_{DP} the [_{NP} big [_{N'} dog]]], and is so represented by necessity in this analysis.

Hence, adjectives can adjoin to maximal projections without any significant effect on current theoretical assumptions. However, it is generally assumed that there are few restrictions on the placement of modifiers. If this is the case, then the adjective in Maori predicate nominals should be allowed to appear in any position, not just pre-Subject. A similar case should hold for adverbs in VP-predicates. Since this is *not* the case, it is evident that there is a restriction or set of restrictions that prohibit modifiers from appearing in certain positions. The next section will consider what these prohibitions are.

6 Modifier Restrictions

The only place that VP-adverbs in Maori can occur is immediately before the arguments of the verb.²³ However, this does not explain why the adverb cannot appear adjoined to the predicative VP, appearing after the arguments, or adjoined to any v', appearing between the arguments. In fact, the only place that the adverbs may appear is XP-adjoined to the light vP.

The situation is an analogous one for the predicate nominal. The adjective only appears immediately after the noun.²⁴ Hence, adjectives may only occur XP-adjoined to the light phrase. The relevant descriptive generalisation here is that modifiers of predicates may only adjoin to the maximal projections of light categories in Maori. More generally, they may only XP adjoin to non-predicate projections. This sufficiently restricts distribution since modifiers must presumably be within the scope of the elements they modify. However, what reason could there be for such a restriction?

6.1 Chomsky (1995a)

So far it has been demonstrated that modifiers in Maori are restricted to being adjoined to the maximal projections of non-predicate phrases. It is notable that Chomsky (1995:329-334) arrives at an almost identical restriction from a theoretical point of view.

Chomsky claims that structures of the following type are prohibited if the XP is theta-related. By this he means that the configuration is barred if XP is an argument or a predicate.²⁵

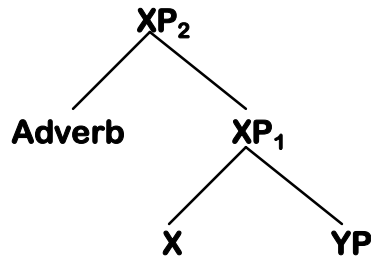


Figure 9: Prohibitions on Adverbs

Chomsky argues that it is unlikely that Figure 9 was arrived at by movement of the adverb since there is little evidence to suggest that adverbs have properties that force XP-adjunction. He concludes by suggesting that adjunction can only occur at a non-maximal node (an X') or to maximal projections of phrases headed by v or functional categories (p.323, 330). I would generalise this somewhat, including *all* phrases headed by a light element, not just light v 's.

Chomsky's proposals fit in well with the findings of this paper. Modifiers must never appear XP-adjoined to a theta-related phrase, so they cannot appear attached to VP, nor to NP in predicate nominals. Despite this, to remain within the scope of the V and N respectively, the modifiers must appear adjoined to some maximal projection lower than T. The only phrases available for this are functional and light ones.²⁶

However, Chomsky also allows for modifiers to adjoin to a non-maximal projection. This leaves adjunction to v' , potentially permitting configurations such as [T V S O Adv] or [T V S Adv O]:

- (16) (i) $[_{TP} T-[v-V]_i [_{vP} S [_{v'} O_k [_{v'} Adv [_{v'} e_i [_{VP} e_j t_k]]]]]]]$
 (ii) $[_{TP} T-[v-V]_i [_{vP} S [_{v'} Adv [_{v'} O_k [_{v'} e_i [_{VP} e_j t_k]]]]]]]$

Although the former (16i) is not permitted for verbal phrases, it does occur in heavy shift in predicate nominals, where a phrase is placed after the subject: *he tohunga ki te reo ia* > *he tohunga ia ki te reo* (see note 24). It is unclear how to prohibit structures like (16ii). It is beyond the scope of this paper to make anything but a conjecture; perhaps modifiers cannot adjoin between specifiers. This question is left open to future research.

6.2 Reasons

Chomsky does not explicitly address the issue of *why* phrasal adjunction is restricted. In fact, he sidesteps the issue, appealing partly to empirical motivation (p.329). I do not intend to offer a full explanation for them here as the motivations for this prohibition are probably complex, perhaps a mixture of interpretive restrictions and phrasal structure conditions. However, some tentative suggestions will be mooted.

Chomsky eliminates movement to an adjoined position by excluding phrasal adjunctions from the checking domain of a head (p.319ff, p.260). Because of this, there is no motivation for an XP to adjoin to a YP to check features with Y since feature-checking in this configuration is impossible. However, this still leaves base generated XP adjunction of modifiers. While Chomsky's reasons for restricting adverb adjunction are obscure, he does suggest that the prohibition involves Theta-related phrases, hence having something to do with Theta theory. This line of inquiry will be tentatively developed here with reference to Hale & Keyser's (1993) version of Theta Theory.

Hale & Keyser (1993) allow a predicate projection to have at most one specifier and one complement. In Chomsky's theory of multiple

specifiers, this translates to meaning that a predicate phrase may only have one specifier containing a root position. Multiple complements are not permitted. Hale & Keyser follow Larson (1988), rejecting the earlier approach that objects can be in multiple complements of a predicate phrase. Instead, they appeal to the notion of Unambiguous Paths (Kayne 1984):

- (17) “Each lexical head X determines an unambiguous projection of its category — to a phrasal level, XP — and an unambiguous arrangement of its arguments, as specifier and complement...”
(p.66).

Unambiguity is ultimately defined as a unique sisterhood relation holding between nodes in the predicate phrase. For example, there is only one sisterhood relation between the specifier and V', and one between V and the complement. They consider this property derivative from a more general notion of unambiguous projection.

Hale & Keyser's system is an interpretive one, with certain structural positions interpreted at the CI interface with (lexically) specified theta roles.²⁷ Because of this, the specifier of a predicate phrase is interpreted as having a theta role from that predicate, and likewise for the complement. It is evident that since the prohibition on adverbs is tied to Theta Theory and Theta Theory is tied to interpretability, there is some restriction on interpretation that prohibits adverbs from appearing in predicate phrases. This can be straightforwardly accounted for by using Hale & Keyser's interpretive system. In the case of a predicate phrase, a di-transitive configuration is as follows:

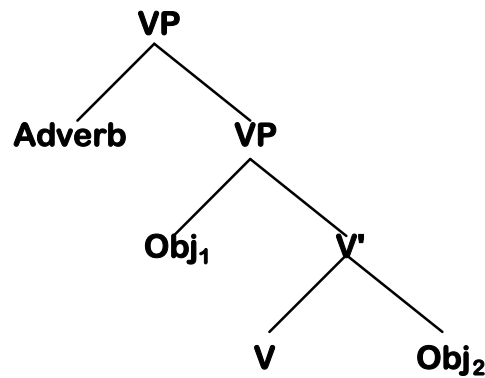


Figure 10: Modified Predicate Phrase

There are two possible approaches to showing that this structure is ambiguous. The first approach relies on Kayne's (1994) theory of phrase structure. Significantly, he eliminates the difference between specifiers and adjuncts, so that Figure 10 is said to contain *two* specifiers — the adverb and Obj1, having the structure [_{VP} Adv [_{V'} Obj1 [_{V'} V [Obj2]]]]. This renders sisterhood relations non-unique, since v' is in a relation with both Obj1 and Adv. This leads to ambiguity of paths in Hale & Keyser's sense, causing the derivation to fail.

The second approach does not rely on the conflation of specifiers and adjuncts. However, it does necessitate expanding Hale & Keyser's definition of 'unambiguous paths' slightly: an XP internal to a predicate phrase in a sisterhood relation with any node of a predicate phrase is interpreted as being in a theta relation with (i.e. receiving a theta role from) that predicate. From figure 10, the adverb is in a sisterhood relation with the VP, necessitating that it is in a theta relation with the V. The fact that the adverb is in no such theta relation causes the derivation to crash. In addition, this approach has the welcome result of requiring external arguments to be attached outside the predicate's phrase since they have no theta role assigned by the predicate.

In summary, the reason that modifiers cannot adjoin to predicate phrases is because they cause ambiguity with respect to the interpretive tenets of Theta theory.

7 Conclusion

This paper has offered an alternative model of Maori phrase structure in accordance with the tenets of the Minimalist Program. Previous approaches were shown to be inadequate from empirical and theoretical points of view. In addition, this paper has shown that modifiers of predicates in Maori must adjoin to non-predicate maximal projections, in agreement with proposals made by Chomsky (1995a). A possible reason for this restriction was suggested as involving Unambiguous Paths and Theta Theory (Hale & Keyser 1993). Whatever the motivations, this paper has shown that more consideration of modifier position in phrase structure is necessary, not just in VSO languages, but universally.

Endnotes

References

- Abney, Stephen. 1987. *The English Noun Phrase in its Sentential Aspect*. PhD dissertation, MIT.
- Bauer, Winifred. 1983. 'Experiencer Verbs in Maori.' **Te Reo** 26:3-28.
- Bauer, Winifred. 1991. 'Maori *ko* again.' **Te Reo** 34:3-14.
- Bauer, Winifred. 1993. *Maori*. London & New York: Routledge.
- Biggs, Bruce. 1973. *Let's Learn Maori*. Wellington: A.H. & A.W. Reed.
- Chomsky, Noam. 1981. *Lectures on Government and Binding*. Dordrecht: Foris.
- Chomsky, Noam. 1986. *Barriers*. Cambridge, Mass.: MIT Press.
- Chomsky, Noam. 1989[1992]. 'Some Notes on Economy of Derivation and Representation.' in Itziar Laka and Anoop Mahajan (eds) *Functional Heads and Clause Structure*. MIT Working Papers in Linguistics vol.10.
- Chomsky, Noam. 1993. 'A Minimalist Program for Linguistic Theory.' in Kenneth Hale & Samuel J. Keyser (eds). *The View From Building 20: Essays in Honor of Sylvain Bromberger*. Cambridge, MIT: MIT Press.
- Chomsky, Noam. 1995a. *The Minimalist Program*. Cambridge, Mass.: MIT Press.
- Chomsky, Noam. 1995b. 'Bare Phrase Structure.' in Gert Webelhuth (ed). *Government and Binding Theory and the Minimalist Program*. Cambridge, Mass.: Blackwell.
- Chung, Sandra, Te Haumihiata Mason, & Wharehuia Milroy. 1995. 'On Maori *he* and the uses of indefinites.' **Jornal of the Polynesian Society** 104.4:429-459.

- Clark, Ross. 1976. *Aspects of Proto-Polynesian Syntax*. Linguistic Society of New Zealand.
- Clark, Ross. 1981. 'Inside and Outside Polynesian Nominalisations.' in J.Hollyman & A.Pawley (eds). *Studies in Pacific Languages and Cultures in Honour of Bruce Biggs*. Linguistic Society of New Zealand. Auckland: N.Z.
- Collberg, Sheila Dooley. 1994. 'DP Syntax for the Maori Noun Phrase.' ms. University of Auckland.
- de Lacy, Paul. 1996a. 'Defining Specificity.' ms. University of Auckland.
- de Lacy, Paul. 1996a. 'Specificity Effects.' ms. University of Auckland.
- Fodor, Janet Dean & Ivan Sag. 1982. 'Referential and Quantificational Indefinites.' **Linguistics and Philosophy** 5:355-398.
- Grimshaw, Jane. 1990. *Argument Structure*. Cambridge, Mass.: MIT Press.
- Hale, Kenneth & Samuel J.Keyser. 1993. 'On Argument Structure and the Lexical Expression of Syntactic Relations.' in Kenneth Hale & Samuel J.Keyser. (eds). *The View From Building 20: Essays in Linguistics in Honor of Sylvain Bromberger*. Cambridge, Mass.: MIT Press. pp.53-110.
- Higginbotham, James. 1985. 'On Semantics.' **LI** 16.4:547-593.
- Higginbotham, James. 1987. 'Indefiniteness and Predication.' in Eric J.Reuland and Alice G.B.ter Meulen. *The Representation of (In)definiteness*. MIT Press. pp.43-70.
- Hohepa, Patrick. 1967. *A Profile Generative Grammar of Maori*. Bloomington, Ind.: Indiana University Press.
- Jackendoff, Ray. 1977. *X' Syntax: A Study of Phrase Structure*. Cambridge, Mass.: MIT Press.

- Kayne, Richard. 1984. *Connectedness and Binary Branching*. Dordrecht: Foris.
- Kayne, Richard. 1994. *The Antisymmetry of Syntax*. Cambridge, Mass.: MIT Press.
- Kitagawa, Yoshisha. 1986. *Subjects in Japanese and English*. PhD Dissertation. University of Massachusetts, Amherst. [published 1994, Garland Press].
- Koopman, Hilda & Dominique Sportiche. 1985. 'Theta Theory and Extraction.' GLOW Newsletter 14:57-8.
- Koopman, Hilda & Dominique Sportiche. 1991. 'The Position of Subjects.' **Lingua** 85:211-58.
- Kuroda, S.-Y. 1988. 'Whether we agree or not: a comparative syntax of English and Japanese.' **Linguisticae Investigationes** 12:1-47.
- Larson, Richard. 1988. 'On the Double-Object Construction.' **LI** 19:335-391.
- Marantz, Alec. 1995. 'The Minimalist Program.' in Gert Webelhuth (ed). *Government and Binding Theory and the Minimalist Program*. Cambridge, Mass.: Blackwell.
- Mutu-Grigg, Margaret. 1982. *The Manner Particles Rawa, Tonu, Noa, Kee, and Kau in Maori*. MPhil Thesis. University of Auckland.
- Pearce, Elizabeth. 1995. 'Operator Binding and the Syntax of Negation in Maori.' ms. Victoria University.
- Polinsky, Maria. 1992. 'Maori *he* revisited.' **Oceanic Linguistics** 31.2:229-250.
- Pollock, Jean-Yves. 1989. 'Verb Movement, Universal Grammar, and the Structure of IP.' **LI** 20:365-424.
- Reedy, Tamati. 1979. 'Complex S Formation in Maori.' PhD Thesis, University of Hawaii.

- Sproat, Richard. 1985. 'Welsh Syntax and VSO Structure.' **NLLT** 3:173-216.
- Travis, Lisa deMena. 1984. *Parameters and Effects of Word Order Variation*. PhD dissertation. MIT.
- Waite, Jeffrey. 1989. 'Tough- and Pretty-Movement in Maori.' **Te Reo** 32:61-94.
- Waite, Jeffrey. 1990. 'Another Look at the Actor-Emphatic.' **Journal of the Polynesian Society** 99:395-413.
- Waite, Jeffrey. 1994. 'Determiner Phrases in Maori.' **Te Reo** 37:55-70.
- Williams, Herbert W. 1971[1862]. *A Dictionary of the Maori language*. 7th ed. Wellington, A. R. Shearer, Govt. printer.

² The only other analysis of Maori syntax within a G/B framework of which I am aware is Collberg (1994) which deals with the DP.

³ Waite generalises this to all predicative XPs (p.67, note 6). As for the VISH, it is now generally believed that the subject begins in [spec,VP], not adjoined to VP (Kitagawa 1986, Kuroda 1988).

⁴ The terms ‘subject’ and ‘object’ are not primitives of the theory. These are just convenient labels: ‘Subject’ refers to the NP that receives the external theta role of the predicate, while the Object receives the internal theta role.

⁵ There is little agreement as to the finer details of specificity. See Fodor & Sag (1982) for one view, and de Lacy (1996a) for an overview. Polinsky (1992) and CMM discuss specificity with respect to Maori.

⁶ Bauer & CMM also point out that *he* can introduce a specific NP if that NP is not the focus of discourse. This does not mean that *he* does not mark non-specificity. It is quite common for languages to extend the use of the non-specific marker to indicate unimportant or backgrounded discourse referents (see references in de Lacy 1996a,b; Fodor & Sag 1982).

⁷ Concomitantly, Maori permits unrealised nouns in the subject of predicate nominals:

he hooiho t + oo Tohe
DET horse DET+POSS Tohe
Tohe has a horse. [Bauer p.198]

Literally, this sentence says ‘The Ø of Tohe is a horse’. The subject’s nominal head is unrealised since it is semantically identical to the predicate nominal’s head, expressing the proposition that ‘the x of Tohe is a horse’, where x is a horse. It is not *co-referential* since the Ø does not refer, but the predicate nominal’s noun is ‘repeated’ in the sense that its realisation would be indeterminate (using *mea* ‘thing’) or expressing the same description that *hooiho* refers to.

⁸ Such an example is *i horoia te whare, he tawhito* ‘The house was washed, the old [one]’ where *he tawhito* is a determiner with a bare adjective (Wharepapa Savage, personal communication).

⁹ Ross Clark has questioned the use of examples such as (6a) on the basis that inserting *mea* ‘thing’ results in ungrammaticality. He suggests that nominalisations are prohibited here for other reasons, namely that suffixed forms refer to specific actions while unsuffixed ones refer to generic ones (Clark 1981). Whether this is true or not, the validity of Clark’s points do not affect the claim that the example in 6a has a NP since verbs may appear heading NPs with both overt marking or no marking at all, as in *te putanga* vs *te puta* ‘the appearing’. Hence, *hanga* probably does head an NP in (6a) if Clark is correct.

¹⁰ I am taking a derivational view of nominalisation here. Even so, if a lexical view is taken the implications are the same.

¹¹ Reedy (p.57) makes the further point that usually only tense markers can precede the negative predicate *kore*. However, in his example (67c) *he* precedes it: [*he kore* ...]_{PRED}[NP]_{SUBJECT}. However, it is equally as possible to see this as the same as the relative clause above. Hence the structure is [_{DP} *he* [_{NP} Ø [_{IP} *kore* ...]]]. There is no tense marker in front of *kore* just as there is no tense marker in the normal relative constructions. Hence, this is no reason for believing that *he* is a tense marker.

¹² However, in predicate nominals where future tense is emphasised the particle *hei* is used. This is obviously not just the determiner *he* alone. If this is a true tense marker and it must bear some mark of futurity, then it seems that *he* also bears tense, hence being a tense marker. Unfortunately, it is beyond the scope of this analysis to show that *hei* is derived from *he*. This will be done in future work. Suffice to say that there is good reason for supposing that predicate nominals are *always* headed by the determiner *he* and that *hei* realises two elements, the suffix *+i* indicating futurity.

¹³ By ‘preposition-related elements’ I refer to prepositions, case markers and tense markers. In fact, some particles have the same phonetic realisation but different syntactic categories. For example, *i* is the realisation of the accusative case marker, past tense, and a preposition, while *e* realises both a preposition and tense. Whether these are marked by some diacritic, or whether the prohibition is reducible to a phonological source is a question for future study. Diachronically, it is probable that tense markers derived from prepositions (Bauer 1993:103). Synchronically, a number of prepositions bear tense features, as in the preposition *kei* ‘locative present’ and *i* ‘locative past’. This is enough to group prepositions and tense markers together as a group of sorts. It is at least evident that tense markers, Case markers and prepositions are grouped together phonologically, thus providing a psychological motivation for their categorisation as a class.

¹⁴ Some analyses have proposed that the subject of a predicate nominal appear in [spec,DP]. I see no reason for this if the VP-internal Subject Hypothesis is assumed to be true. In the VISH, the subject appears internal to the predicate VP; analogously, the subject of a predicate nominal should appear inside the predicate NP, not the functional projection of the determiner.

¹⁵ Travis’ (1984) Head Movement Constraint only allows a head α to adjoin to a head β if β properly governs α . In addition, Chomsky (1995a) claims that modifiers do not form chains.

¹⁶ Placing a modifier in the complement of a predicate does have a precedent in Larson’s (1988) analysis of double-object constructions in English. In sentences of the form ‘*John read the book carefully*’, *carefully* is taken to be base-generated in the complement of the lower VP.

¹⁷ This does present a problem in the modification of some nominalisations, since the object must also appear in the complement.

¹⁸ For example, if the above sentence was [[*he [tohunga [ki te motokaa whero]]]]te tangata] ‘the man is an expert in red automobiles’, the adjective *whero* would need to adjoin to *motokaa*. Pearce (1995:26, note 10) notes the problem of*

multiple head-adjunctions this brings, but still assumes a head movement approach.

¹⁹ The alternative is to move the subject out of the VP before the VP moves. The problem with this is that an NP trace is ungoverned at S-Structure, which requires reconstruction at LF. Although this is viable, and VPs can be fronted, as in “..and [_{VP} fix the car]_i he did e_i”, it is unlikely that a language should use this complex strategy for their most productive movement. In addition, this goes against conceptions that VSO order should be derived by a straightforward set of movements.

²⁰ Only one topicalised phrase is permissible in a clause (Bauer 1993:238). Only one question (*wh*-) word can appear sentence-initially (Bauer 1993:24). Since these are taken to reside in [spec,CP], this suggests that only one [spec,CP] is permitted in a derivation.

²¹ This is the simpler alternative of two Chomsky offers. This way, the Subject always c-commands the Object. See Chomsky (1995a:ch4, section 10).

²² Kayne (1994) has suggested that the target of head adjunction is always ordered to the right of the adjoined head. This suggestion is not taken up here, following Chomsky’s (1995:340) conclusion that questions of adjoined-head order “seem rather obscure and may have no general answer.”

²³ I suppose that there is some restriction on certain types of adverbs requiring that they be within the scope of some V at LF for whatever reason, probably an interpretive one (at the CI interface). This ensures that they do not appear adjoined to IP/TP.

²⁴ There are instances of heavy shift whereby the a modifier will move to the right of the subject if it of a certain prosodic ‘weight’ in comparison to the subject. Hence, *he tamaiti pai i te kura ia* ‘She is a child [who is] good at school’ varies with *he tamaiti pai ia i te kura* (Bauer 1993:97). This is purely stylistic, however, and the first form is the more basic. Waite (1994) uses such a phrase to argue that only head movement occurs and the moved head’s modifiers remain *in situ*. However, Bauer (1993:241-7) shows that this is heavy shift, and that the basic word order is one in which modifiers immediately follow the head.

²⁵ Chomsky discusses English adverbs and other matters related to this constraint in detail. For discussion on this topic, the reader is referred to the relevant parts of Chomsky (1995a:section 7).

²⁶ So far I have assumed that there are no functional projections between the light phrase and the TP. However, there is the problem of unaccusatives, which have no subject, hence no light vP. In this case, there is nowhere for the adverb to attach. Since adverbs do appear with unaccusatives, there must be a functional projection inbetween TP and the VP. What projection this is is beyond the scope of this paper to determine.

²⁷ It is not universally agreed that all internal theta roles are lexically specified. Grimshaw (1990) suggests that at least some are derivative from the lexical conceptual structure of the form.